

CLAIMS

1. A micro-electromechanical device which comprises
a substrate containing drive circuitry; and
5 an elongate actuator that is fast with the substrate at a fixed end, the elongate actuator having a laminated structure of at least one inner layer and a pair of opposed, outer layers, the outer layers having substantially the same thermal expansion and elasticity characteristics, with one of the outer layers defining an electrical heating circuit that is in electrical contact with the drive circuitry to be heated and to expand on receipt of an electrical signal from the drive
10 circuitry and to cool and contract on termination of the signal, thereby to generate reciprocal movement of the actuator.
2. A device as claimed in claim 1, in which the actuator has a single inner layer.
- 15 3. A device as claimed in claim 1, in which the outer layers have a higher coefficient of thermal expansion than the inner layer.
4. A micro-electromechanical device which comprises
a substrate containing drive circuitry; and
20 a plurality of elongate actuators, each actuator being fast with the substrate at a fixed end, each elongate actuator having a laminated structure of at least three layers in the form of a pair of opposed, outer layers and at least one inner layer, the outer layers having substantially the same thermal expansion and elasticity characteristics, with one of the outer layers defining an electrical heating circuit that is in electrical contact with the drive circuitry to be heated and
25 to expand on receipt of an electrical signal from the drive circuitry and to cool and contract on termination of the signal, thereby to generate reciprocal movement of the actuator.